

Three-Dimensional Cockpit Display System for Improved Situational Awareness, Phase I

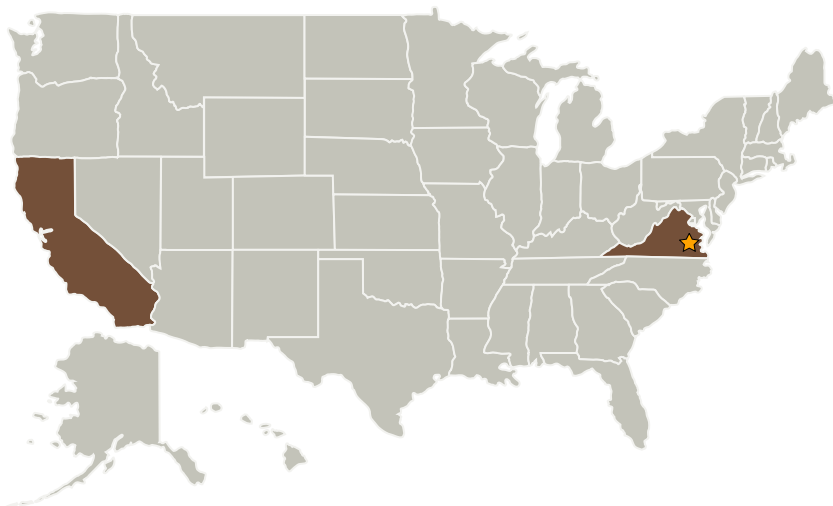
Completed Technology Project (2005 - 2005)



Project Introduction

To improve aviation safety, NASA requires crew-centric technologies that ensure appropriate situational awareness through improved information presentation. Presenting information by 3D display can significantly facilitate human perception and counteract biases and error-tendencies, leading to improved aviation safety. To address this NASA need, Physical Optics Corporation (POC) proposes to develop a new 3D COckpit Display (3D-COD) system for aircraft flight decks, based on fast scanning liquid crystal (LC) optics, to create a compact multiuser, multiperspective 3D display system that has no moving parts and requires no 3D glasses. This interactive system brings automultiscopic viewing to pilots and crew members on the flight deck, with a greater than 60 degree FOV, 2048x2048 resolution, 60 Hz flicker-free full-color, high-brightness, and crosstalk-free operation, introducing 3D display technology to the cockpit. The use of LC technology well developed for flat-panel LC displays, reduces cost and makes the system commercially attractive. In Phase I POC will develop a scaled-down version of the fast-scanning LC optics display system and demonstrate its 3D operation on a laboratory 3D testbed system. This testbed will be upgraded to a fully packaged optimized prototype in Phase II.

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

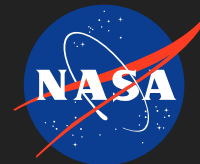
Langley Research Center (LaRC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★ Langley Research Center(LaRC)	Lead Organization	NASA Center	Hampton, Virginia
Physical Optics Corporation	Supporting Organization	Industry	Torrance, California

Primary U.S. Work Locations

California	Virginia
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Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Ranjit Pradhan

Technology Areas

Primary:

- TX06 Human Health, Life Support, and Habitation Systems
 - └ TX06.2 Extravehicular Activity Systems
 - └ TX06.2.3 Informatics and Decision Support Systems